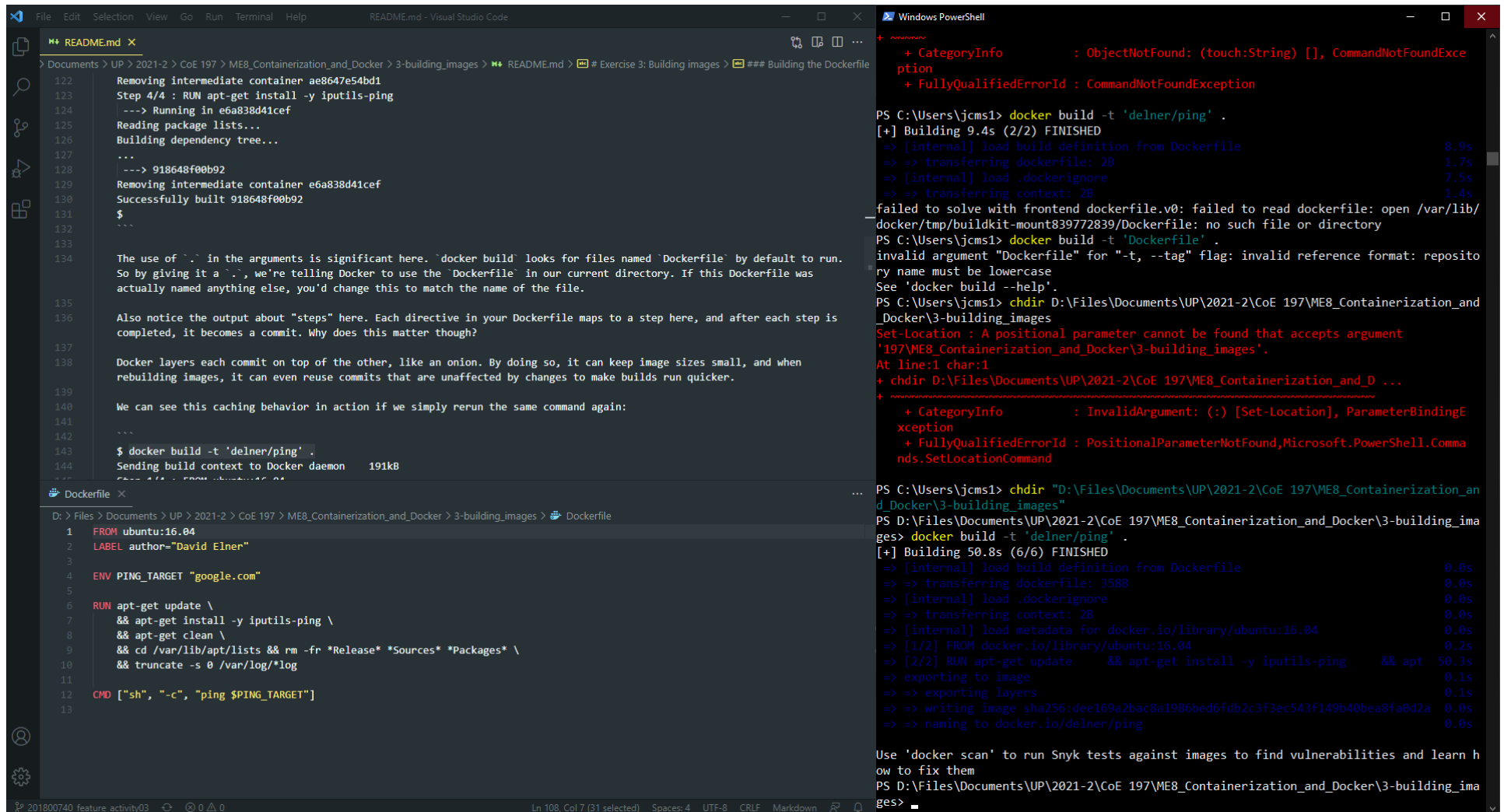


ME08 Activity 3 - Building Images



The screenshot displays the Visual Studio Code editor and a Windows PowerShell terminal window. The Visual Studio Code editor shows a file named `README.md` with the following content:

```
122 Removing intermediate container ae8647e54bd1
123 Step 4/4 : RUN apt-get install -y iputils-ping
124 ----> Running in e6a838d41cef
125 Reading package lists...
126 Building dependency tree...
127 ...
128 ----> 918648f00b92
129 Removing intermediate container e6a838d41cef
130 Successfully built 918648f00b92
131 $
132 ...
133
134 The use of '.' in the arguments is significant here. 'docker build' looks for files named 'Dockerfile' by default to run.
135 So by giving it a '.', we're telling Docker to use the 'Dockerfile' in our current directory. If this Dockerfile was
136 actually named anything else, you'd change this to match the name of the file.
137
138 Also notice the output about "steps" here. Each directive in your Dockerfile maps to a step here, and after each step is
139 completed, it becomes a commit. Why does this matter though?
140
141 Docker layers each commit on top of the other, like an onion. By doing so, it can keep image sizes small, and when
142 rebuilding images, it can even reuse commits that are unaffected by changes to make builds run quicker.
143
144 We can see this caching behavior in action if we simply rerun the same command again:
145
146 $ docker build -t 'delner/ping' .
147 Sending build context to Docker daemon 191kB
148 ...
```

The Windows PowerShell terminal window shows the following commands and output:

```
PS C:\Users\jcms1> docker build -t 'delner/ping' .
[+] Building 9.4s (2/2) FINISHED
=> [internal] load build definition from Dockerfile 8.9s
=> => transferring dockerfile: 2B 1.7s
=> [internal] load .dockerignore 7.5s
=> => transferring context: 2B 1.4s
failed to solve with frontend dockerfile.v0: failed to read dockerfile: open /var/lib/
docker/tmp/buildkit-mount839772839/Dockerfile: no such file or directory
PS C:\Users\jcms1> docker build -t 'Dockerfile' .
invalid argument "Dockerfile" for "-t, --tag" flag: invalid reference format: repository name must be lowercase
See 'docker build --help'.
PS C:\Users\jcms1> chdir D:\Files\Documents\UP\2021-2\CoE 197\ME8_Containerization_and
_Docker\3-building_images
Set-Location : A positional parameter cannot be found that accepts argument
'197\ME8_Containerization_and_Docker\3-building_images'.
At line:1 char:1
+ chdir D:\Files\Documents\UP\2021-2\CoE 197\ME8_Containerization_and_D ...
+ ~~~~~
+ CategoryInfo          : InvalidArgument: (:) [Set-Location], ParameterBindingE
xception
+ FullyQualifiedErrorId : PositionalParameterNotFound,Microsoft.PowerShell.Comma
nds.SetLocationCommand
PS C:\Users\jcms1> chdir "D:\Files\Documents\UP\2021-2\CoE 197\ME8_Containerization_an
d_Docker\3-building_images"
PS D:\Files\Documents\UP\2021-2\CoE 197\ME8_Containerization_and_Docker\3-building_ima
ges> docker build -t 'delner/ping' .
[+] Building 50.8s (6/6) FINISHED
=> [internal] load build definition from Dockerfile 0.0s
=> => transferring dockerfile: 358B 0.0s
=> [internal] load .dockerignore 0.0s
=> => transferring context: 2B 0.0s
=> [internal] load metadata for docker.io/library/ubuntu:16.04 0.0s
=> [1/2] FROM docker.io/library/ubuntu:16.04 0.2s
=> [2/2] RUN apt-get update && apt-get install -y iputils-ping && apt 50.3s
=> exporting to image 0.1s
=> => exporting layers 0.1s
=> => writing image sha256:dee169a2bac8a1986bed6fdb2c3f3ec543f149b40bea8fa0d2a 0.0s
=> => naming to docker.io/delner/ping 0.0s
Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn h
ow to fix them
PS D:\Files\Documents\UP\2021-2\CoE 197\ME8_Containerization_and_Docker\3-building_ima
ges>
```

Building Dockerfile

```
File Edit Selection View Go Run Terminal Help Dockerfile - Visual Studio Code

197 > ME8_Containerization_and_Docker > 3-building_images > README.md > Exercise 3: Building images > ## Other Dockerfile directives
261 64 bytes from lga34s13-in-f14.1e100.net (172.217.10.46): icmp_seq=1 ttl=37 time=0.300 ms
262 64 bytes from lga34s13-in-f14.1e100.net (172.217.10.46): icmp_seq=2 ttl=37 time=0.373 ms
263 64 bytes from lga34s13-in-f14.1e100.net (172.217.10.46): icmp_seq=3 ttl=37 time=0.378 ms
264 ^C
265 --- google.com ping statistics ---
266 3 packets transmitted, 3 received, 0% packet loss, time 2078ms
267 rtt min/avg/max/mdev = 0.300/0.350/0.378/0.038 ms
268 $
269 ---
270
271 ### Learning more about Dockerfiles
272
273 Most images in the Docker world are built from Dockerfiles, and looking at other Dockerfiles from your
274 favorite repos can be a wonderful source of information about how they function, and how you can
275 improve your own images. Seek them out on both DockerHub and GitHub!

Dockerfile M X
D: > Files > Documents > UP > 2021-2 > CoE 197 > ME8_Containerization_and_Docker > 3-building_images > Dockerfile
1 FROM ubuntu:16.04
2 LABEL author="David Elner"
3
4 ENV PING_TARGET "google.com"
5
6 RUN apt-get update \
7     && apt-get install -y iputils-ping \
8     && apt-get clean \
9     && cd /var/lib/apt/lists && rm -fr *Release* *Sources* *Packages* \
10    && truncate -s 0 /var/log/*log
11
12 CMD ["sh", "-c", "ping $PING_TARGET"]

Windows PowerShell
-> exporting to image 0.1s
-> exporting layers 0.0s
-> writing image sha256:a7c503ba34b90d7fe1fac60414697f9d3efb5fa0ab08256092aa7d12b8f15f4d 0.0s
-> naming to docker.io/delner/ping 0.0s
PS D:\Files\Documents\UP\2021-2\CoE 197\ME8_Containerization_and_Docker\3-building_images> docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
delner/ping latest a7c503ba34b9 3 seconds ago 170MB
<none> <none> 09f5e88cb1c7 7 minutes ago 170MB
ubuntu 16.04 9ff95a467e45 3 weeks ago 135MB
PS D:\Files\Documents\UP\2021-2\CoE 197\ME8_Containerization_and_Docker\3-building_images> docker rmi 09
Deleted: sha256:09f5e88cb1c78f6124d7bc71d664c2bf8bc73d96c666cd936187d6c359608e1
PS D:\Files\Documents\UP\2021-2\CoE 197\ME8_Containerization_and_Docker\3-building_images> docker rmi a7
Untagged: delner/ping:latest
Deleted: sha256:a7c503ba34b90d7fe1fac60414697f9d3efb5fa0ab08256092aa7d12b8f15f4d
PS D:\Files\Documents\UP\2021-2\CoE 197\ME8_Containerization_and_Docker\3-building_images> docker build -t 'delner/ping' .
[+] Building 0.3s (6/6) FINISHED
-> [internal] load build definition from Dockerfile 0.1s
-> => transferring dockerfile: 356B 0.0s
-> [internal] load .dockerignore 0.0s
-> => transferring context: 2B 0.0s
-> [internal] load metadata for docker.io/library/ubuntu:16.04 0.0s
-> [1/2] FROM docker.io/library/ubuntu:16.04 0.0s
-> CACHED [2/2] RUN apt-get update && apt-get install -y iputils-ping 0.0s
-> exporting to image 0.0s
-> => exporting layers 0.0s
-> => writing image sha256:dee169a2bac8a1986bed6fdb2c3f3ec543f149b40bea8fa0d2a 0.0s
-> => naming to docker.io/delner/ping 0.0s
PS D:\Files\Documents\UP\2021-2\CoE 197\ME8_Containerization_and_Docker\3-building_images> docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
delner/ping latest dee169a2bac8 33 minutes ago 139MB
ubuntu 16.04 9ff95a467e45 3 weeks ago 135MB
PS D:\Files\Documents\UP\2021-2\CoE 197\ME8_Containerization_and_Docker\3-building_images> docker run -it delner/ping
PING google.com (142.250.207.78) 56(84) bytes of data.
64 bytes from 142.250.207.78: icmp_seq=1 ttl=37 time=33.6 ms
64 bytes from 142.250.207.78: icmp_seq=2 ttl=37 time=26.3 ms
64 bytes from 142.250.207.78: icmp_seq=3 ttl=37 time=26.8 ms
64 bytes from 142.250.207.78: icmp_seq=4 ttl=37 time=27.7 ms
64 bytes from 142.250.207.78: icmp_seq=5 ttl=37 time=27.3 ms
^C
--- google.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4005ms
rtt min/avg/max/mdev = 26.367/28.394/33.640/2.667 ms
PS D:\Files\Documents\UP\2021-2\CoE 197\ME8_Containerization_and_Docker\3-building_images>
```

Dockerfile now optimized and automatically pings when delner/ping runs